

REMARKS

The Advisory Action of December 2, 2004 and the Office Action dated August 6, 2004 have been carefully reviewed and this response addresses the concerns set forth in both the Office Action and the Advisory Action.

More specifically, claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spott (DE 32 33 557) in view of Howe (US Patent # 3,682,186). This rejection is respectfully traversed.

Spott relates to reactor in which the reaction mixture is used to drive a scraper pig is driven by the reaction mixture through the reactor to prevent the build up of deposits. The reactor of Spott is in a loop shape, but clearly is not a "loop reactor" (i.e., closed loop continuous reactor) as described in the present application. A "loop reactor" is described both in the present specification and in the Wilkinson & Gedds article, incorporated by reference therein. A "loop reactor" consists of a continuous tube which connects the outlet of a circulation pump to the inlet of the same pump. Raw materials, such as monomer feed and an aqueous solution of stabilizers (e.g., "water phase") are provided into the tube through separate feed streams. The resulting emulsion polymer product is recycled/recirculated through the entire reactor loop while fresh raw materials are added into the emulsion polymer stream and overflowing product is collected. In contrast, the reactor charge in Spott is discharged by gravity through tube 65 from vessel 59 through mesh grid 60, as shown in Fig. 3 (cited in the Office Action), while the pigs are separated from the reactor charge being discharged and returned to the suction inlet of circulation pump 52 via gravity through tube 62, tube bend 63, and tube 64. Thus, in Spott, the pigs are being recycled/recirculated around the loop, not the reactor charge. In fact, the reaction product is not and cannot be recirculated.


Further, unlike the present invention, Spott moves both the **new** reaction solution (added to tube 63 through valve 51) and the **recirculated** scraper pigs through the circulation pump 52 and into the reactor 56. No by-pass tube for by-passing a pig around the circulation pump and no pig receiving station are suggested, taught or disclosed by Spott.

Howe relates to a by-pass system for pipeline operations in which a pig may be automatically passed by a booster station through a station by-pass interchange in order not to disturb the operation of the booster station. Howe also does not describe a "loop reactor" for continuous polymerization as disclosed in the present application. In fact, the Howe apparatus is not even a reactor, but instead is a long transport line that contains booster stations to keep the flow rate of the liquid or gas being transported at a certain level. No emulsion polymerization takes place and there are no monomer inlets or emulsion discharge outlets.

Further, the pigs in Howe are not and can not be taken out from or placed into the by-pass interchange, nor can the entire by-pass interchange be removed from the pipeline system. In fact, it is preferred by Howe that the pigs pass through the by-pass interchange with stopping as one of the advantages asserted by Howe is that the position of the pig(s), with respect to the flowing stream of liquids or gasses, is precisely maintained. In fact, the controller of Howe is timed for accurate placement of the pig(s) with respect to the stream of liquids or gases in order to prevent product contamination. A pig is halted in the interchange only if another pig is detected upstream, and then (1) only if there is not enough time to complete the sequence for releasing the pig in the interchange back into the stream and (2) only until the second pig entered the interchange, at which point both pigs are launched.

Thus, for the reasons set forth above, the present invention is non-obvious over the cited references and the Applicant respectfully requests that the Examiner find the present application in condition for immediate allowance.

Respectfully submitted,
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